

IN THE CLAIMS:

Please cancel Claims 1-20, and amend claims 21-24 without prejudice or disclaimer of the subject matter.

Claims 1-20 (Canceled)

21. **(Currently amended)** An elongated drive string assembly comprising a plurality of hollow sucker rods and connecting elements with an axis, connected together and between a drive head located at the surface of an oil well and a rotary pump located deep down the oil well, wherein each hollow sucker rod has at least a first end comprising an internal female threaded surface engaging an external male threaded surface on a connecting element, wherein said threads are frusto-conical and non-symmetrical, but differential in diametral taper to each other; the first end of each hollow sucker rod further comprising an annular torque shoulder engaging an annular torque shoulder on the connecting element, and being characterized in that, for an outside diameter of the connecting element (DEN), an internal diameter (DIN) of the connecting element, and a starting diameter of the torque shoulder on the connecting element (DHT), the following ratios are maintained:

Diameter Ratios	Range	
	Min.	Max.
DHT/DEN	0.60	0.98
DIN/DEN	0.15	0.90
DIN/DHT	0.25	0.92

~~An elongated drive string assembly according to Claim 1,~~ wherein the each connector element is a separate nipple connector element having substantially conical threads with male threads on each end separated by a central section defining a pair of torque shoulders, and each nipple free end further comprises incomplete threads that are adapted to engage against a shoulder of the rod, so as to define a seal between the inner bore and the threads.

22. **(Original)** An elongated drive string assembly according to Claim 21, wherein the bore of the nipple is conical and opening towards each end, there is an external cylindrical zone between each free end and the beginning the threads and the free end defines said seal between the inner bore and the threads.

23. **(Currently amended)** An elongated drive string assembly comprising a plurality of hollow sucker rods and connecting elements with an axis, connected together and between a drive head located at the surface of an oil well and a rotary

pump located deep down the oil well, wherein each hollow sucker rod has at least a first end comprising an internal female threaded surface engaging an external male threaded surface on a connecting element, wherein said threads are frusto-conical and non-symmetrical, but differential in diametral taper to each other; the first end of each hollow sucker rod further comprising an annular torque shoulder engaging an annular torque shoulder on the connecting element, and being characterized in that, for an outside diameter of the connecting element (DEN), an internal diameter (DIN) of the connecting element, and a starting diameter of the torque shoulder on the connecting element (DHT), the following ratios are maintained:

Diameter Ratios	Range	
	Min.	Max.
DHT/DEN	0.60	0.98
DIN/DEN	0.15	0.90
DIN/DHT	0.25	0.92

~~An elongated drive string assembly according to Claim 1,~~ wherein the rod sections located proximate to each extreme end of the string each have a plurality of holes extending through the rod wall of said sections, to enable fluid flowing outside of the rod to also flow within said bore and between the extreme ends.

24. **(Original)** An elongated drive string assembly according to Claim 23, wherein the plurality of holes are drilled radially through the rod wall, proximate to each extreme end of the string.

25. **(Original)** An elongated drive string assembly according to Claim 23, wherein the plurality of holes through the rod wall and are arranged in a symmetrical fashion about the centerline of the rod, proximate to each extreme end of the string.

26. **(Original)** An elongated drive string assembly according to Claim 23, wherein the plurality of holes comprise between about 62 and 162 holes which are arranged in sets of one to three holes at specific tranverse sections spaced along the centerline of the rod, proximate to each extreme end of the string.

27. **(Original)** An elongated drive string assembly according to Claim 23, wherein the plurality of holes comprise between about 62 and 162 holes which are arranged in a helicoidal path about the centerline of the rod, proximate to each extreme end of the string.

28. **(Currently Amended)** A connecting element adapted to engage a hollow sucker rod along an axis, wherein an external male threaded surface on the connecting element is adapted to engage a hollow sucker rod first end comprising an internal female threaded surface which is complementary but differential in diametral taper to the male threaded surface; the connecting element further comprising an annular torque shoulder adapted to engage an annular torque shoulder on the first end of a hollow sucker rod, and being characterized in that, for an outside diameter of the connecting element (DEN), an internal diameter (DIN) of the connecting element, and a starting diameter of the torque shoulder of the connecting element (DHT), the following ratios are maintained:

Diameter Ratios	Range	
	Min.	Max.
DHT/DEN	0.60	0.98
DIN/DEN	0.15	0.90
DIN/DHT	0.25	0.92

~~A connecting element according to Claim 14, further having~~ wherein said connecting element further comprises substantially conical threads with male threads on each end separated by a central section defining a pair of torque shoulders, and each nipple free end further comprises incomplete threads that are adapted to engage against a shoulder

of a rod, so as to define a seal between the inner bore and the threads.

29. **(Original)** A connecting element according to Claim 28, wherein the bore of the nipple is conical and opening towards each end, there is an external cylindrical zone between each free end and the beginning the threads and the free end defines said seal between the inner bore and the threads.

30. **(Currently Amended)** A hollow sucker rod adapted to engage a connecting element along an axis, wherein the hollow sucker rod has at least a first end comprising an internal female threaded surface adapted to engage an external male threaded surface of a connecting element, which is complementary but differential in diametral taper to the female threaded surface; said first end of the hollow sucker rod further comprising an annular torque shoulder adapted to engage an annular torque shoulder of a connecting element, and being characterized in that, for an outside diameter of a connecting element (DEN), an internal diameter (DIN) of a connecting element, and a starting diameter of the torque shoulder of a connecting element (DHT), the following ratios are maintained:

Diameter Ratios	Range	
	Min.	Max.
DHT/DEN	0.60	0.98
DIN/DEN	0.15	0.90
DIN/DHT	0.25	0.92

~~A hollow rod according to Claim 10~~, wherein a rod section that is adapted to be located proximate to each extreme end of a string has a plurality of holes through the rod wall of that section, to enable fluid flowing outside of the rod to also flow within said bore.

31. **(Original)** A hollow rod according to Claim 30, wherein the plurality of holes are drilled radially through the rod wall.

32. **(Original)** A hollow rod according to Claim 30, wherein the plurality of holes through the rod wall are arranged in a symmetrical fashion about the centerline of the rod.

33. **(Original)** A hollow rod according to Claim 30, wherein the plurality of holes comprise between about 62 and 162 holes which are arranged in sets of one to three holes at specific transverse sections spaced along the centerline of the rod.

34. **(Original)** A hollow rod according to Claim 30, wherein the plurality of holes comprise between about 62 and 162 holes which are arranged in a helicoidal path about the centerline of the rod.